



**Faculty of Language and Communication**

**BEYOND FUN: LEARNING KENYAH LANGUAGE (LEPO'  
JENGAN) THROUGH MOBILE LANGUAGE GAME**

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**Bachelor of Arts with Honours (Linguistics)  
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# **BEYOND FUN: LEARNING KENYAH LANGUAGE (LEPO' JENGAN) THROUGH MOBILE LANGUAGE GAME**

by

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This final year project is submitted in partial fulfilment of the requirements for the  
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## **ABSTRACT**

The Kenyah language is an example of one of those languages as it is not part of the main languages in the world. Due to marriage pattern and economy, the linguistic situation within the present of Kenyah community has changed. There are numerous mobile game-based language learning applications created for major languages in the world and there have been few language learning applications developed for minor languages. Kenyah language is an example of least-spoken by the Kenyah youths especially in urban areas and less attention as it is not as practical as other main languages in Sarawak. This study explores the potential use of mobile games in encouraging youths to learn Kenyah language (Lepo' Jengan). A game-based mobile prototype in Kenyah language (Lepo' Jengan) was designed and developed by adapting ADDIE MODEL. 15 Kenyah youths were chosen to test the prototype. The Esiu Kenyah prototype was tested with the chosen participants as an experimental group. Research findings showed that, this prototype is potentially promising in future research. The implementation of The Esiu Kenyah prototype has shown a high level of acceptance among the participants.

## ABSTRAK

Bahasa Kenyah merupakan salah satu contoh bahasa yang bukan sebahagian daripada bahasa utama di dunia. Oleh kerana corak perkahwinan dan ekonomi, keadaan linguistik dalam masyarakat Kenyah sekarang telah berubah. Terdapat pelbagai aplikasi pembelajaran bahasa berasaskan pembelajaran bahasa melalui *game-based* yang dibentuk khas untuk bahasa-bahasa utama di dunia dan hanya terdapat beberapa aplikasi pembelajaran bahasa yang dibina untuk bahasa-bahasa sukuan. Bahasa Kenyah merupakan salah satu contoh bahasa yang paling kurang digunakan oleh generasi muda berbangsa Kenyah terutamanya yang tinggal di kawasan bandar dan kurang mendapat perhatian kerana bahasa Kenyah tidak praktikal seperti bahasa utama lain yang ada di Sarawak. Kajian ini meneroka potensi pembelajaran bahasa melalui *game-based* dalam menggalakkan belia untuk mempelajari bahasa Kenyah (Lepo 'Jengan). Prototaip mudah alih berasaskan *game-based* dalam bahasa Kenyah (Lepo 'Jengan) telah direka dan dibentuk berasaskan *ADDIE MODEL*. 15 belia berbangsa Kenyah telah dipilih untuk menguji prototaip. Prototaip Esiu Kenyah diuji dengan peserta yang dipilih sebagai kumpulan eksperimen. Penemuan penyelidikan menunjukkan bahawa, prototaip ini berpotensi dalam penyelidikan masa depan. Perlaksanaan prototaip Esiu Kenyah telah menunjukkan tahap penerimaan yang tinggi di kalangan para peserta.

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# **CHAPTER ONE**

## **INTRODUCTION**

### **1.0 Introduction**

This section serves to provide information on the outline of this research proposal. Background of the study, research problem, aims and objectives, research questions, significance of the study, limitation of the study, operational definitions and summary are included in this chapter.

### **1.1 Background of study**

Malaysia, especially Sarawak is home to numerous indigenous languages (Haja Mohideen, 2010). Kenyah, one of the ethnic groups that had long resided in Sarawak, also can be found in East Kalimantan. According to Morrison, the Malaysian Statistics Department, noted there were 44,350 Kenyahs inhabiting areas of East Kalimantan and 24,906 in Sarawak in the year 2000 (as cited in Intercontinental Cry Magazine, n.d.).

Kenyah language is used by some ethnic groups who originally inhabited the highlands and several river basins in northern Sarawak and East Kalimantan on the island of Borneo (Soriente, 2004). Soriente (2014) stated that Kenyahs also occupied urban areas in cities such as Miri in Sarawak and Samarinda in East and North Kalimantan. Unlike Iban and Bidayuh languages, Kenyah is not taught through the public school curriculum in Malaysian be it in the urban settings or the rural areas within Sarawak.

Preliminary research on this topic, which included a search for Kenyah's (Lepo' Jengan) textbooks, dictionaries and mobile language application in the library as well as online search engines found no literature pertaining to this area. According to Chachil et al. (2014), there are many language learning mobile applications invented for most of the main languages in the world but very few were available for the minority languages.

The Kenyah language is an example of one of those languages as it is not part of the main languages in the world. Based on the data of UNESCO (2005), Kenyah language is categorized as one of over fifty percent of 6,000 languages in the world which were in danger of disappearing. Moreover, no thorough description of any Kenyah isolect had ever been produced. Furthermore, due to marriage pattern and economy, the linguistic situation within the present of Kenyah community has changed. In addition to that, the Kenyah language was less spoken by the younger generations especially in urban areas. According to Coluzzi et al., (2013) “most people in Sarawak can now speak Malay, and many, especially among the educated population are fluent in English” (p.376). Therefore, mobile games for Kenyah language learning could be viable alternative to encourage and assist youths to learn the language efficiently and to preserve the language.

The focus of this study is to explore the potential use of mobile game-based language learning in encouraging youths to learn Kenyah language in Sarawak. Jones (2014) stated that language learning through gameplay can be an influential agent for learner self-determination, a potential resource for long-term language maintenance.

The scope of this study focuses on the Kenyah Language (Lepo' Jengan) in Sarawak which is centred at Long Moh, Ulu Baram. Utusan Borneo (2015) stated that there are 3 Kenyah sub-ethnic groups in Long Moh such as Lepo' Tau, Lepo' Ngkau and Lepo' Jengan.

## **1.2 Mobile game-based language learning**

The acquisition of a third language is not easy for non-native speakers as it requires much efforts to learn the language. Chachil et al. (2014) stated that learning language the traditional way often requires learners to attend classes. Often, the learning process always involves reading and memorizing words and phrases. However, mobile technologies have

emerged where it has grown rapidly and are owned by the global community in urban and rural areas. Moreover, wireless communication technology is widely spread in Sarawak except in certain remote areas such as Ulu Baram. According to Chinnery (2006), mobile technologies noticeably offer numerous practical uses in language learning. The mobile technology contributes direct and indirect impact to education, especially in language learning. Gunter et al. (2016) explained combining games with mobile devices can promote learning opportunities at the learners' fingertips and enable essential learning experiences. In addition, interactive games such as flashcard puzzles, crossword puzzles and vocabulary games are the starter learning kits to develop language skills especially learning a third language.

The use of mobile game for language learning has been popular. There are several mobile game-based language learning applications available to learn major languages in the world (English, Portuguese, Spanish, Japan, Chinese and German) such as MindSnacks, FluentU, Influent, Duolingo, Language Gain and Digital dialects. According to Jones (2014) language learning games that focused on a particular language or cultural topic can be successful, particularly if they were used in the context in which the learners are highly motivated. According to Chachil et al. (2014), Mobile Language Translation game (SPELL IT!) developed by Wan Fatimah et al. (2012) was a positive evidence that is relevant and beneficial to the community as a learning tool to learn English Language. Prensky (2001) explained gaming approach is essentially motivating in learning a new language. An interactive mobile game-based approach allows learners to immerse in the learning setting in order to obtain new language skills.

In this study, The Esiu Kenyah Prototype will be developed and implemented to provide learners a different approach in learning language. The Esiu Kenyah Prototype uses

animated technology that provides game-based application to enable learners to engage in a fun learning environment and learning the correct usage of Kenyah language.

With the development of information technology, mobile technology is rapidly growing. Alexander (2004) defined mobile devices as learning tool in the process of teaching and learning (Hamdani, 2013). Goksu and Atici (2013) stated that mobile device usage surpasses computer in terms of accessing popular websites such as Youtube, Instagram, Facebook and Twitter. This indicated that mobile devices have the potential to be learning tools too. According to Heyoung Kim and Yeonhee Kwon (2012) the potential uses of learning through mobile devices allow the users to be more flexible, accessible, and to personalize their learning activities. In general, generations of mobile wireless technology users tend to use mobile devices for e-learning and entertainment purposes. Utilising mobile devices as e-learning tool helps students to maintain their interest in language learning (Miyashita and Moll, 1999). Moreover, Burston (2013) stated that the use of games has attracted the interest of many practitioners in the area of education (as cited in Duarte et al., 2016).

### **1.3 Research Problem**

Digital Game-Based Learning has emerged and widely spread in variety of business and other places, such as in education, training purposes, soft skills, etc (Prensky, 2001). According to Meyer (2013), game-based learning of language exceeds the formal or informal context for learning, although language may be learned in different ways in these contexts. Studies have been conducted on the use of mobile application for learning Indigenous languages such as Iban language and Maori language (Chachil et al., 2014; Crow and Parsons, 2015) but studies have yet to be conducted on the use of mobile game-based language learning applications for Indigenous languages, and more specifically, the use of

mobile language applications and mobile game-based language learning applications for Indigenous in Sarawak. Initial study on this topic, conducted through a search of various databases and online search engines, found no literature related to this area despite the existence of various Indigenous communities. The research literature on developing mobile application and game-based application of indigenous language in Malaysia are still lacking. However, developers have designed mobile applications for major languages on both the iPhone® and Android® platforms.

#### **1.4 Research Question and Purpose of Study**

This study is intended to address the following questions:

1. What are the strengths and weaknesses in utilizing mobile game-based application in learning the Kenyah language?
2. Can the mobile application teach the Kenyah Language?
3. How is the acceptance of Kenyah youths in urban areas of Sarawak in learning the Kenyah Language through mobile games?
4. Can the mobile application preserve the Kenyah language?

#### **1.5 Objectives of study**

The aim of this study is to explore the potential use of mobile games in encouraging Kenyah youths to learn Kenyah language (Lepo' Jengan). The specific objectives are:

1. To analyse the strengths and weaknesses in utilizing mobile game-based application in learning the Kenyah Language.
2. To identify the acceptance level of the Kenyah youths in urban areas of Sarawak in learning the Kenyah language through mobile games.



## 1.6 Conceptual and operational definition of terms

- **Mobile game-based learning**

**Conceptual definition** – “Game-based learning is a competitive activity in which students are set educational goals intended to promote knowledge acquisition.” (Erhel & Jamet, 2013)

**Operational definition** – A language learning game through mobile that has defined learning outcomes.

- **Third language**

**Conceptual definition** – “Third language (L3) acquisition is potentially more complex than the study of cross-linguistic influence in second language (L2) acquisition because it implicates all the processes associated with second language acquisition as well” (Cenoz, 2001)

**Operational definition** – Third language refers to the acquisition of a language which is different from the first and the second language that is acquired before them.

- **Youths**

**Conceptual definition** – “Youths range between the ages of 15 – 40” (National Youth Development Policy, 1997)

**Operational definition** – The younger people in society from 15 to 40 years old.

- **Indigenous language**

**Conceptual definition** – “An indigenous language or autochthonous language is a language that is native to a region and spoken by indigenous people, often reduced to the status of a minority language. This language would be from a linguistically

distinct community that has been settled in the area for many generations.

(Definition.Net, n.d.)

**Operational definition** – Indigenous language refers to a language that is native to the public and spoken by indigenous people carrying the status of a minority language.

- **Learning tool**

**Conceptual definition** – “A learning tool is something a student uses to work through big ideas, concepts or processes while demonstrating his or her thinking, planning and/or decision-making on the way to creating, performing or responding.

(PCAE, n.d.)

**Operational definition** – Learning tool refers to an instrument or learning kits that student uses to help to perform a task.

## **1.7 Significance of the study**

As the purpose of this study is to explore the potential use of mobile language learning games in encouraging youths to learn Kenyah language (Lepo' Jengan), it could perhaps indirectly preserve the language and enable the language to be more visible. Furthermore, the results could assist language researchers in developing and designing mobile game-based language learning and language applications for Kenyah and other indigenous languages in Borneo. Moreover, with a good mobile application for the Kenyah language, this research not only could encourage the Kenyah youths but also the Sarawakian youths to learn a minority language in an interactive approach. It is hoped that this study would add more information and literature to the language communities in Malaysia in general.

## **1.8 Scope of the study**

The focus of this study is to identify the acceptance of youths in learning the Kenyah Language through mobile game-based language learning and to analyse the affordances and constraints of mobile language games. This study uses mobile game-based as the general term in discussing the design of the mobile language learning game application. This study will look into the affordances and constraints of multiple mobile game-based language learning applications in order to identify suitable features and components to be use in the development of the Kenyah language mobile game-based language learning prototype.

### **Summary**

This chapter introduced and presented some background information, purpose and objectives of the study. The following chapter will discuss further on literature review including related researchers and previous methods used to support this study.

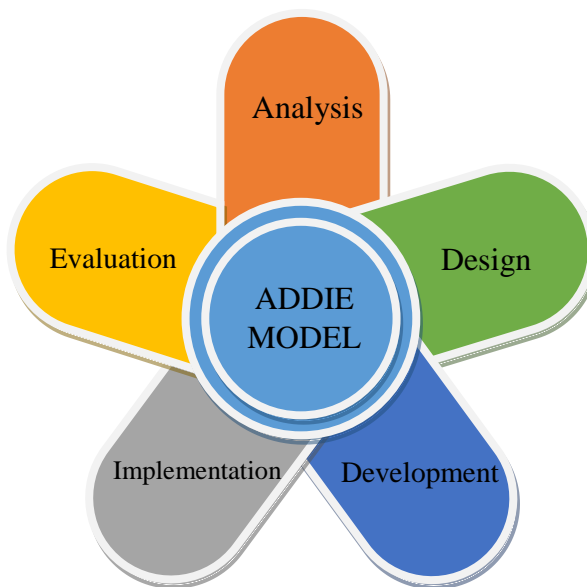
## CHAPTER TWO

### LITERATURE REVIEW

#### 2.0 Introduction

This chapter provides a review of pertinent literature related to mobile learning and mobile-assisted language learning. It consists of four major parts. The first part of the literature review focuses on the idea of mobile game-based language learning application as a learning tool. The second part concentrates about impact of mobile game-based learning. The third part seeks to identify the idea of Indigenous language learning mobile apps.

#### 2.1 Theoretical framework



*Figure 1.* The ADDIE model is quite popularly used when designing digital learning materials or contents.

The ADDIE model as shown in figure 1 is used to structure the design of the prototype and a guideline for building the prototype. The ADDIE model is a framework that comprises of five phases: analysis; design; development; implementation and evaluation. The ADDIE model represents a guideline for building effective training and performance support tools. According to Chachil et al. (2014), the ADDIE Model is a framework that lists generic

processes that instructional designers and training developers use, representing a guideline for building effective training and performance support tools. Caws (2013) stated that ADDIE is an instructional system design that is to guide developers in the creation and evaluation of language software or any other language-related computer software (as cited in Perry, 2015). Shelton and Saltsman (2008) stated that ADDIE model is a systemic model that comprises of five-step process that can be used for both traditional and online instruction.

## **2.2 Mobile game-based language application as a learning tool**

The influence and usage of modern technology has been increasing in people's daily lives. Mobile technologies, for instance, allow practitioners especially young generation to interact simultaneously with digital information and the physical world. Both mobile and gaming technologies have gradually evolved to a learning platform (Facer et al, 2004). According to Conde González and García-Peñalvo (2014) many students access these environments by using their mobile devices, they are often called mobile personal learning environments (Duarte et al., 2016). This is an example to highlight that digital media does not only respond perfectly to the need for play and entertainment, but also, for educational purposes.

According to the research by Musa Nushi and Mohamad Hosein Eqbali (2017) and Feifei Ye (2014) that reviewed DuoLingo showed that by applying gamification in learning a new language, the game-based language learning approach has been able to keep the learners interested and less self-conscious of learning. Prensky (2001) reported that gaming approach is essentially motivating in learning a new language. In a study conducted by Ruphina Anyaebu et al (2012), they observed a lesson using Mingoville and interviewed the participants about game based classroom and Mingoville content. A semi- structured interview was adopted. About 58 pupils from two schools participated in the interview and

there was no special criterion used in choosing the interviewees. The result of this study indicated that using Mingoville as a kit for learning English as a second language and game-based approach was a better strategy to reach digital natives in China (Ruphina Anyaebu et al, 2012). Meyer (2013) stated that game-based learning through technology platform provided users with more time for interaction with the language and increased exposure to the target language. Furthermore, mobile game-based learning (mGBL) engaged the learners to continue to learn.

### **2.3 Impact of mobile game-based learning**

The technology can bring together youth and elders to collaboratively work on language projects. Galla (2010) stated that “technology gets youth involved even if they are remotely interested in the language itself”. Perry (2015) conducted a case study on gamification of French Language Learning examining a quest-based, augmented reality mobile learning-tool. The study consisted of the development and implementation of a prototype learning tool namely *Explorez*. The study was conducted involving a first year university French-language class. The ADDIE model was employed in this study. According to Caws (2013) employing ADDIE as the instructional design model was well suited to guide developers in the creation and evaluation of language software or any language-related computer system (as cited in Perry, 2015). In this study, eleven non-native speakers volunteered to be part this study. As part of the development of the prototype, the researcher had conducted a critical analysis on gamification in education and a literary review regarding its potential role in second language learning, which methodology and tools to be incorporated in language learning applications. The students were asked to describe their experience with the prototype *Explorez*, the top descriptors were: “fun”, “useful”, “motivating” and “relevant”. As a result, 9 out of 11 students (88%) described the experience

as “fun”, moreover, for the level of usefulness, 7 out of 11 students (63.6%) responded “useful” and for the level of motivation, 6 out of 11 participants (54.5%) described the experience as “motivating”. Furthermore, the students were asked to rate four such elements as learning motivators in regards to their experience with the prototype such as creating avatars, completing quests, collecting badges and collaborating with teammates. Then students were asked to choose a response on a 5-point Likert scale; 5 indicated the element was “positive-it motivated me in my learning” whereas 1 indicated, “negative-it was demotivating”. As for the mean rating of creating avatars was 3.5, the mean of collecting badges was 4.4, completing quests, and collaborating with teammates were both ranked with a mean of 4.5. Moreover, the researcher indicated that game-based learning can be positive motivators for learners.

## **2.4 Technology for Indigenous language learning**

Today, the technology is far more advanced than it was in the late 80’s. Villa (2002) stated that several interactive media such as computers and software were not only to record and to document Indigenous languages to preserve the language but also to create learning materials to teach the language. However, there were very few studies on the use of technology for indigenous languages (Galla, 2010; Obonyo, 2009).

According to the research carried out by Obonyo (2010), he invented a Smartpen to support the work in revitalization of the Myaamia language. The study aimed to determine the potential of technology in revitalising the Myaamia language. In this study, two Smartpen-based products were developed and assessed: Animals picture book labelled in Myaamia language and a Myaamia Phrase book both printed on open dot-paper. For each book, the Smartpen was programmed to play the names of the animals and the phrases when the pen tip touches the appropriate image or phrases in the books. A CD titled: Animal &

Phrases, which contained the website of the animal picture book and the phrase book, was also developed. Ten Myaamia Tribe families were selected and were involved in assessing other products in addition to what was provided in this research. There were several initial criteria that were used in selecting families to participate in the assessment. The first criteria was families that had little or no prior knowledge of the language, second, families with children, however, it was not a rigid requirement. Lastly, the researcher identify ten participating families to make sure that there was sufficient data to help in drawing conclusions. These selected tribal families consisted of young children in the home. The parents were assigned to mentor their children to learn, and understand that their roles were to test a variety of products produced through the Myaamia Project. Each of the participating families were given all the research materials and no control group was factored into the research design. As a result, six of the eight families, 75%, reported that they were more interested than before in learning the Myaamia language and culture. They also felt that engaging good technological tools in language learning and preserving the indigenous languages can contribute positively to revitalizing languages. Supporting these data, Galla (2010) stated that indigenous languages are no longer in isolation, but rather supported by interactive media.

Begay (2013) conducted a study to determine how mobile applications were used in Indigenous language revitalization efforts. The researcher conducted the study in two parts. In the first part, is the researcher analysed the effectiveness of four mobile applications, namely Navajo Toddler, Speak Navajo, Cherokee and Chikasaw. Then in part two, the researcher developed a language application model based on the assessment carried out in part one. The purpose of this study is to provide an initial assessment of the potential use of language applications for language learning as well as to provide a tool that community



members, educators and language advocates could use to develop their own language material. As the result, the researcher found that the Navajo Toddler app received positive feedback and provided different language learning experience in comparison to the other three applications: The Speak Navajo, Cherokee and Chickasaw applications. Overall, the Navajo Toddler was the most effective language learning tool. Based on the researcher's assessment, three themes were found to be essential in creating an effective language learning model: the integration of multimedia and interactive media for user engagement and for providing an effective learning environment, testing and evaluation of application for accuracy in content and structure and providing a well-developed user-friendly interface that focuses on the learning experience. Through this review, the researcher then developed the Indigenous language application model.

## **2.5 Mobile-assisted language learning**

Computers as a medium in language learning has become a common tools for students to access online dictionaries, online books, language learning websites and videos. However, using mobile devices are more convenient and easy to use than personal computers. Ali Sorayyaei Azar and Hassan Nasiri (2014) conducted a study to investigate the effectiveness of cell-phone in Iranian L2 listening comprehension and their attitudes towards the mobile technology in educational centres. In this study, 70 students were selected and were randomly assigned into two groups: Experimental and control groups that consisted of 35 students in each group. 35 of the participants were randomly assigned to the experimental group, 18 females and 17 males; the comparison group consisted of the other 35 participants, 17 of whom were female, and 18 were male. Both groups attended the classes three days a week. The only difference between the two groups was the experimental group was given MALL questionnaire and required to fill in based on the explanation given by the teacher.

After the pre-test and post-test were conducted, the results were compared and the experimental group outperformed the control group. The results of this study indicated that MALL is an effective way of improving listening comprehension and an innovative way for learning a new language.

According to Mosavi Miagah and Nezarat in their study “Need for Mobile Learning: Technologies and Opportunities” (2012), they stated that MALL provides students with individual study and online resource opportunities. Mosavi Miagah and Nezarat (2012) stated that mobile-assisted language learning (MALL) able to reduce time and enable to access the mobile devices for language learning purposes anywhere. MALL can be considered as the next generation of e-learning.

### **Summary**

Ample studies have been done for development and implementation of language learning application, however more attention should be given to indigenous languages especially Kenyah language in order to teach and to preserve the language. Moreover, the previous research that showed effectiveness and the potential of game-based language learning were limited. The next chapter will discuss about the methods employed in conducting the research.

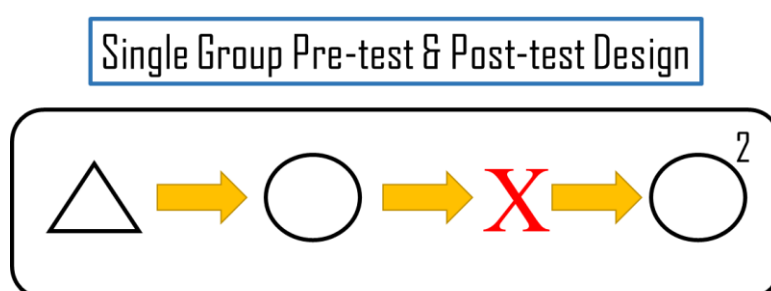
## CHAPTER 3

### METHODOLOGY

#### 3.0 Introduction

This chapter explains the research methodology of the study. Research design and all executed procedures will be thoroughly explained. This includes research design, sample selection, instrument, data collection and analysis procedures, and limitations of the study.

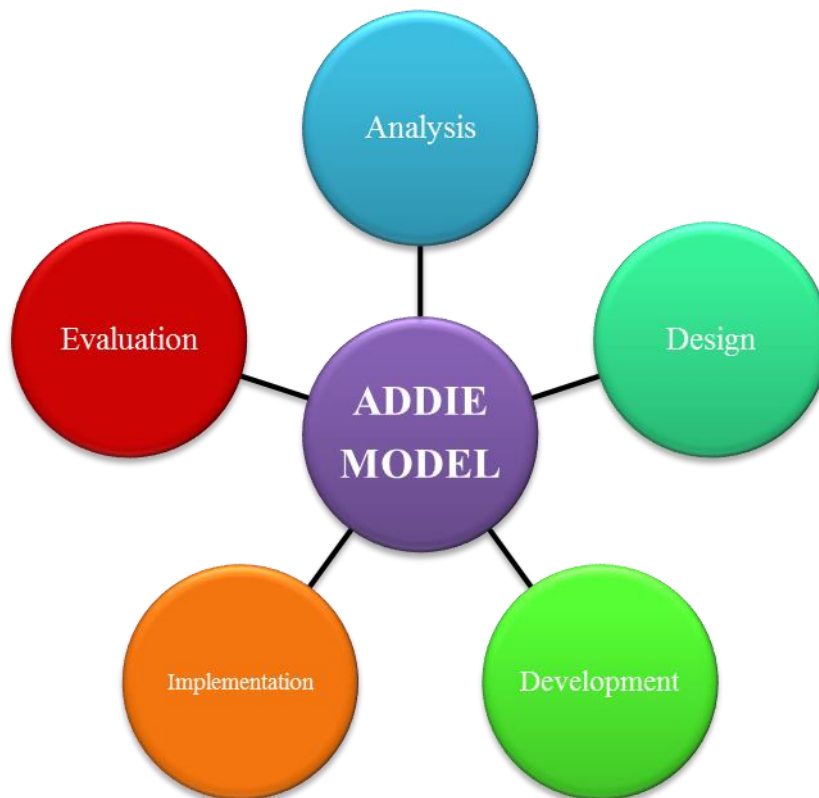
#### 3.1 Research Design



*Figure 2* Quasi-Experimental framework

This study is carried out with quantitative methods which was based on quasi-experimental design that include demographic survey, pre-test and post-test, content analysis and prototype evaluation. According to Arthur (2013) quasi-experimental designs are research studies in which the participants were selected for different conditions from pre-existing group. A similar methodology was used by Martin and Ertzberger (2013) when implementing the intervention and collecting samples in order to obtain the baseline. Moreover, Campbell and Stanley (1963) stated that quasi-experimental design is widely used in educational research. Furthermore, each method has different strong points and weaknesses, therefore, analyzing data with various methods will help further balance out the

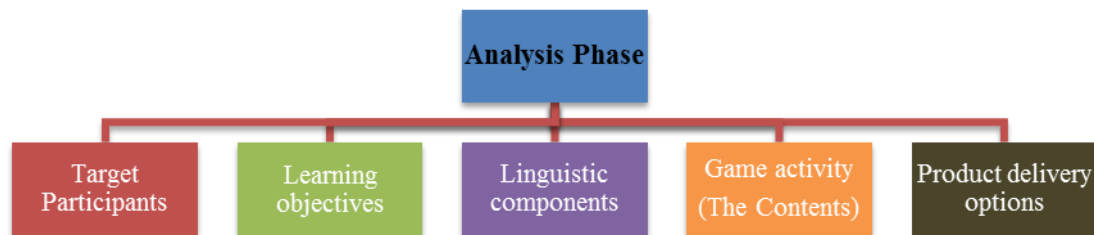
various results obtained from different viewpoints of researching the same topic and each method compensates for one another.



*Figure 3 ADDIE Model Framework*

The model as shown in figure 2 is used to structure the design of the prototype and a guideline for building the prototype. The ADDIE model is a framework that comprises of five phases: analysis; design; development; implementation and evaluation. The ADDIE model represents a guideline for building effective training and performance support tools. Department of the Air Force's (2001) article describes the ADDIE models, principles, and processes for developing education and training programs as detailed in the U.S. Air Force

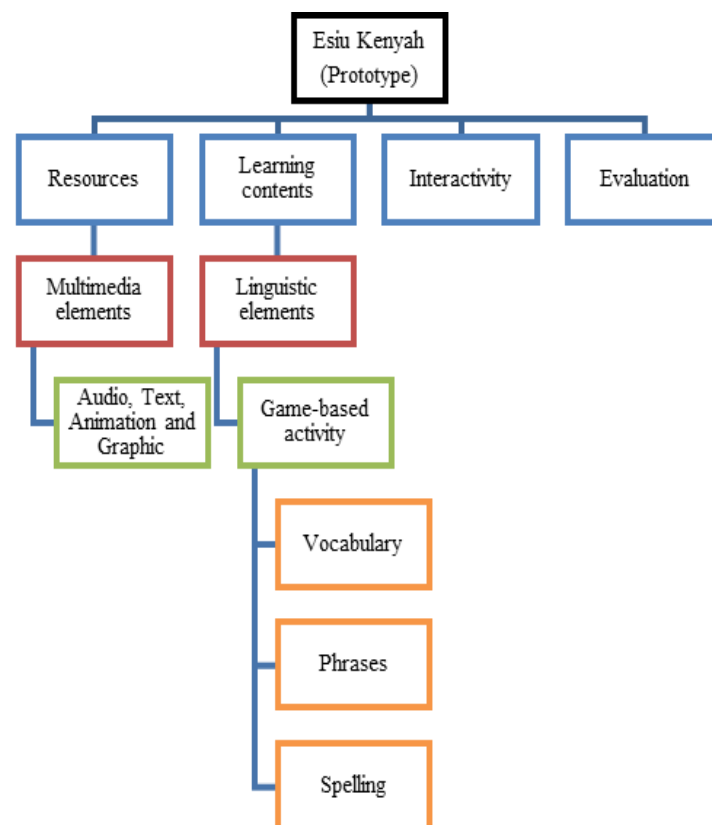
manual AFMAN 36-2234 (Allen, 2006). Colpaert (2006) stated that design-based research is an iterative process with the aim of approaching a desired goal, and each stage of the ADDIE model produces output that the researcher employs as input for the next stage (as cited in Perry, 2015).



*Figure 4 ADDIE Model framework for Analysis Phase*

Figure 3 shows the analysis phase, which is the first phase of ADDIE model. The target participants were identified as Kenyah youths, who lived in urban areas in Sarawak in terms of their environment and level of understanding in Kenyah language. The second part of the analysis phase is the learning objectives included reading, speaking and listening so that the participants was able to use Kenyah (Lepo' Jengan) language. The third part of the analysis phase was 4 linguistic elements were selected such as syntax, morphology, semantic and phonology that applied in the prototype. The contents such as vocabulary and phrases were chosen and analysed thoroughly to ensure the information were presented sufficiently. The information of the chosen vocabulary and phrases were selected based on recommendations from Kenyah language experts. Two Kenyah language experts were chosen, Mr Henry Collin Belawing is a pensioner who worked at Sarawak Native Customs Council and the second language expert is Mary Baun Kalang. Madam Mary is from Long Moh, Baram and currently lives in Miri Sarawak. Product delivery options focused on the

type of mobile platforms and application prototyping tools used. The search on the availability of Kenyah mobile application for learning language was conducted on two famous mobile platforms: Iphone and Android. There were no existing mobile applications to teach or learn the Kenyah language.



*Figure 5* Design component of the Mobile Prototype based on ADDIE Model

The framework as indicated in Figure 4 was used for structuring the design of the prototype. The first phase of design component are the multimedia elements. The design of layout used Buttons designs for categories by adopting Kenyah Art drawing. For audio, the voice of native speaker is used for listening purpose and text and graphic are to display the

contents as learning material. After the first phase, the results of the development progress are reported based on the four phase of ADDIE model that comprised of design, development, implementation and evaluation. These phases include the contents, the process of describing the user interaction with the contents and the development of the prototype. The content framework comprised of three components: resources, learning contents and interactivity. Multimedia elements such as texts, graphics, animations and audios were used in developing the prototype as shown in storyboard in Appendix 1. The most important component were the learning contents that focused on four linguistic elements such as syntax, morphology, phonology and semantics were applied in the game-based activity that comprised of three games-based activities in the prototype such as vocabulary activity, sentence structure activity, and listening activity. The interactivity refers to the implementation of the activities that was performed by both users and the prototype. The last part in this component was the element of the design of the prototype such as the navigation button and the interface.

This study is carried out using quantitative and quasi-experimental methods to identify and describe participants' acceptance after experiencing Kenyah game-based language learning prototype that include interviews of participants and users' evaluation. The method been used in this study are quantitative. Johnson et al., (as cited in Teddlie and Tashakkori, 2011) stated that quantitative research is the type of research in which a researcher uses the elements of quantitative approaches such as descriptive statistic themes to analyse the information. The quantitative data were gathered by means of experimental group, recorded accomplishment and prototype evaluation (pre and post) for future analysis of the participants' interactions with the instrument. The participants were given a structured evaluation form based on four level: reaction, learning, behaviour and result (Kirkpatrick, 1967). The context of this study was specifically in urban settings in Sarawak and

participants were Kenyah youth. Hence, the acceptance of the participants and participants' evaluation on the prototype were obtained, analysed and describe.

### **3.2 Population and Sampling**

The size of participants involved in the present study were 15 Kenyah youths from urban settings in Sarawak. The focus group method was used in this study. The sampling been used in this study was convenience sampling which is non-equivalent group. Generally, experimental group utilize convenience sampling (Nagle & Williams, n.d.). The selected participants were the Kenyah youth community in urban areas churches in Sarawak. According to Teddlie and Yu (2007) convenience sampling involves drawing samples that are both easily accessible and willing to participate in a study. This method of sampling was affordable, easy and the subjects are readily available. A convenience sampling refers to the act of selecting group of individuals and assembled by researchers to discuss and comment on, from personal experience, the topic that is the subject of the study (Powell & Single, 1996). As Etikan et al (2015) states "convenience sampling (also known as Haphazard Sampling or Accidental Sampling) is a type of nonprobability or non-random sampling where members of the target population that meet certain practical criteria, such as easy accessibility, geographical proximity, availability at a given time, or the willingness to participate are included for the purpose of the study". Moreover, convenience sampling referred to the subjects of the population that are easily to be accessed by the researcher.

However, there were other factors to be considered in order to achieve the objectives of this study. The participants must be Malaysian and only citizens of Malaysian identity are able to be classified clearly by age and background. These factors were taken into consideration to Sapir-Whorf hypothesis that is labelled as linguistic determinism, whereby the basis of a person's worldview is reliant on our native tongue as we have been engaged in



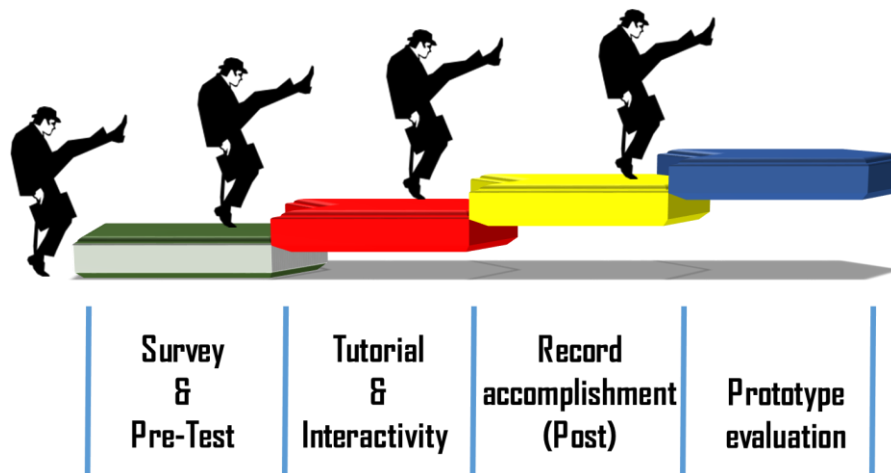
the process of shaping how we see our world through the language and the culture we are born into (Fantini, 1997). The participants were selected from urban settings in Sarawak. Participant identification survey were done upon their approval and they participated in the current study. The participants were chosen because they have the something in common, which included their Kenyah language proficiency level and their preferred mother tongue language.

Therefore, participants from the same ethnicity and mixed-race Kenyah youths are more preferred to control diversified results due to cultural differences. Aside from cultural background, the age range of participants must be 17 to 40 years of age for selection based on NYDP (National Youth Development Policy). Only Kenyah youth from 17 to 40 years of age are eligible in this study. Moreover, Kenyah youth from urban areas is the main concern of this study because they are the generation who are active users of mobile technology compared to any other generation after them.

### **3.3 Instrument**

The instruments to be used in this study to obtain data for further analysis were The Esiu Kenyah prototype, participant identification survey and users' evaluation. The structured evaluation form based on four level: reaction, learning, behaviour and result adapted from (Kirkpatrick, 1967).

### 3.4 Data collection procedure



*Figure 6 Data Collection Procedure*

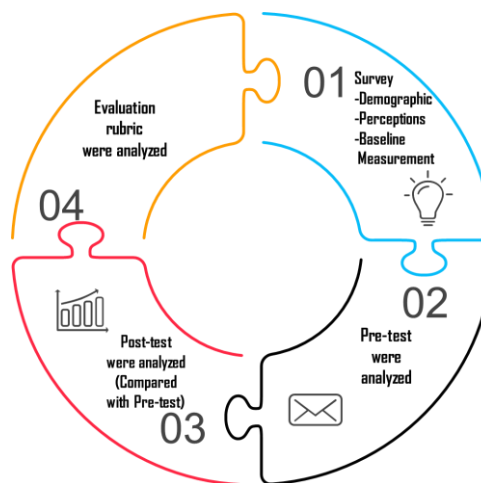
The data collection procedure of present study is shown in Figure 4. According to O'Leary (2004) the data collection procedure is important but a difficult component in research, the selection of data collection methods varies according to the goal and outcome that researchers want to achieve. The participants for this study were informed about the topic that would be asked earlier and pre-survey were conducted once they had agreed to participate. There were several questions were asked in order to get the information of the participants as in Appendix 2. This process enabled the researcher to choose suitable participants for this study. Quantitative pre-test and post-test were used to evaluate how much vocabulary was being learnt in the intervention sessions. The pre-test was done in order to obtain the baseline of the study. After the pre-test, the participants were given tutorial on how to use the application for 5 minutes and given 2 weeks to explore the Kenyah language learning through game-based via the prototype. The post-test data were collected after the implementation of the intervention based on the recorded accomplishment done by the participants. The researcher planned to collect the results after the participants explored the

game-based language learning via the prototype. The participants were given a structured evaluation form based on 4 sections: Reaction, Learning, Behaviour and Result. The evaluation form was adapted from Kirkpatrick's model (1967).

### 3.5 Data analysis procedure

The data analysis procedure of present study is presented in Figure 5. Based on Figure 5, participants Interview evaluation forms were analysed.

#### 3.5.1 Content Analysis



*Figure 7 Data Analysis Procedure*

In content data analysis procedures, the demographic survey was analysed in order to obtain participants' identification, perceptions towards the Kenyah Language, and the baseline measurement was done. The pre-test were analysed and the data were obtained as the baseline of this study. Followed by, post-test score measurement that consisted of accomplishment of the participants as shown in figure 7. After obtaining recorded accomplishment, content analysis will be carried out to further discussion. Descriptive statistics will be used to describe the obtained data from the recorded and the evaluation rubric from the participants.

### **3.6 Limitation of study**

There are number of limitations in this study. Firstly, there are no literature relating to this area despite the existence of various Indigenous communities. Moreover, the search of textbooks, dictionaries and mobile language application did not yield any results. The results obtained from the present study cannot be used to represent Kenyah population as a whole because the numbers of Kenyah youth in Sarawak are mainly concentrated only in urban areas in Sarawak. This study is currently limited to the urban Kenyah youths.

### **Summary**

This chapter has thoroughly explained the research design, population and sampling, instrument used, data collection and analysis procedures and limitation of the study. This research is a mix method research and comprise of developing and implementing the prototype to obtain data, in line with the research objectives. These samples were then analysed and described to determine the potential use of mobile game-based language learning in encouraging youths to learn Kenyah language in Sarawak.

## **CHAPTER 4**

### **RESULTS AND DISCUSSION**

#### **4.0 Introduction**

Chapter four includes the analysis of data collected after the implementation of pre-test and post-test. The discussion and data analysis of this study were based on 3 research questions, namely: 1) What are the strengths and weaknesses in utilizing mobile game-based application in learning the Kenyah language? 2) Can the mobile application teach the Kenyah Language? 3) How is the acceptance of Kenyah youths in urban areas of Sarawak in learning the Kenyah Language through mobile games? 4) Can the mobile application preserve the Kenyah language? The data were extracted from the pre-test and post-test survey and analysed based on quantitative methodology. Furthermore, the scoring points from the prototype will be added to show the information in detail.

#### **4.1 Participant Identification**

The purpose of the pre-test was to determine a base-line of current experience with Kenyah language (Lepo' Jengan), language learning through mobile apps or website, to ensure they were Kenyah natives or Kenyah mixed and general attitudes about Kenyah language among Kenyah youths in urban areas. Appendix 3 shows the complete pre-survey result. The information was collected about 1) the experience in participating in any language learning courses through mobile devices 2) the current attitude in learning the Kenyah language and dialects 3) the levels of understanding in the Kenyah language. A pre-test and pre-survey, which formed the foundation for data extraction, was used to collect information. Therefore, the participants were given questionnaire survey before the implementation of the prototype.

| Section   | %     | Answers        |
|---|-------|----------------|
| Race  | 60%   | Pure Kenyah    |
| Have you ever participated in any language learning courses through mobile devices? (Apps & Websites) | 33.3% | Yes            |
| I am interested in learning more about the Kenyah language and dialects                               | 46.7% | Strongly agree |
| When my parents speak in Kenyah, I understand them.   | 60%   | Very Well      |

*Table 1* Participant Identification

A question regarding the participant identification was asked in order to determine the participants are Malaysian and Kenyah Youths. From the data in table 1, the results showed that only 60% of the participants were pure Kenyah. Moreover, only 33.3% of the participants had the experienced in participating language learning courses through mobile devices. However, 46.7% strongly agree to learn more about the Kenyah language and dialects. On the other hand, only 60% of the participants are able to understand very well in Kenyah language.

## 4.2 Data Analysis based on Research Questions

**Research question 1:** What are the strengths and weaknesses in utilizing mobile game-based application in learning the Kenyah language?

**Research question 2:** Can the Esiu Kenyah prototype teach the Kenyah language (Lepo' Jengan)?

The researcher conducted a pre-test and a post-test among the participants. The pre-test and post-test questions that were provided by the researcher consist of 7 questions consisting of 7 items. These pre-test and post-test questions were constructed by the researchers in the form of quiz as in Appendix 4. The researcher has ensured that the level of

difficulty of the pre-test and post-test questions is the same to ensure the Kenyah proficiency level before and after using the Esiu Kenyah prototype.

*Table 2 Pre-test result*

| <i>Questions</i> | <i>Pre-score</i> |
|------------------|------------------|
| 1                | 33.3             |
| 2                | 73.3             |
| 3                | 13.3             |
| 4                | 46.7             |
| 5                | 40               |
| 6                | 66.7             |
| 7                | 33.3             |

7 questions were constructed for the pre-test. Total number of marks for 15 participants is 100 and the results in Table 6 show the results for the pre-test. As a result of the test, the researcher found that there were only 33% of the participants able to answer question 1 and question 7, 73.3% of the participants able to answer question 2, 13.3% of the participants able to answer question 3, 46.7% of the participants able to answer question 4, 40% of the participants able to answer question 5, and 66.7% of the participants able to answer question 6.

The respondents were less likely to master the Kenyah language (Lepo' Jengan) because the question items were in Kenyah (Lepo' Jengan) language which is different vocabulary compared to their Kenyah dialects. The participants were asked to construct sentences and translate words based on the words given. This is similar to what Crow (2015) said in his study that the participants were tested a vocabulary set that was unknown to the

participants although there were still a few words that some participants managed to guess in the pre-test. Examples of mistakes that can be identified through this test are participants were confused with the use of the noun “wok” which means mine in the Kenyah (Lepo’ Jengan) language and the glottal stop on the word 'iye', iko 'and ake'.

*Table 3 Post-test result*

| <i><b>Questions</b></i> | <i><b>Post-Score</b></i> |
|-------------------------|--------------------------|
| 1                       | 80.0                     |
| 2                       | 86.7                     |
| 3                       | 86.7                     |
| 4                       | 100                      |
| 5                       | 100                      |
| 6                       | 88.7                     |
| 7                       | 100                      |

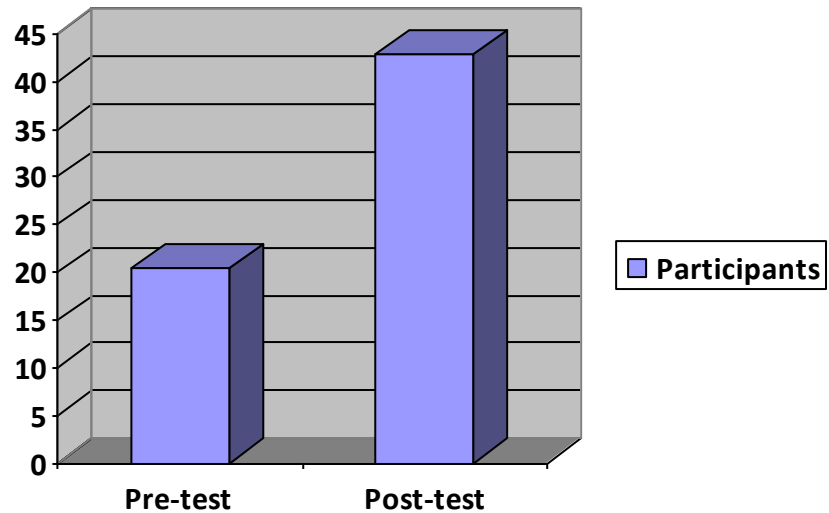
Table 3 shows the post-test results obtained from respondents after the intervention. Based on Table 3, the researcher found that there was an improvement in the post-test. From total of 15 participants, 80% to 100% of the participants were able to answer the questions. 80% of the participants able to answer question 1, 86.7% of the participants able to answer questions 2 and 3, 100% of the participants able to answer questions 4, 5 and 7 and 88.7% of the participants able to answer question 6. This increase was due to the result of game activities undertaken during the intervention. Table 4 shows the comparison of the results from the pre-test and post-test.



Table 4 Comparison between Pre-test and Post-test

| <i><b>Questions</b></i> | <i><b>Pre-score</b></i> | <i><b>Post-score</b></i> | <i><b>Diff</b></i> |
|-------------------------|-------------------------|--------------------------|--------------------|
| 1                       | 33.3                    | 80.0                     | 46.7               |
| 2                       | 73.3                    | 86.7                     | 13.4               |
| 3                       | 13.3                    | 86.7                     | 73.4               |
| 4                       | 46.7                    | 100                      | 53.3               |
| 5                       | 40                      | 100                      | 60                 |
| 6                       | 66.7                    | 88.7                     | 22                 |
| 7                       | 33.3                    | 100                      | 66.7               |

Through comparison in Table 4, it can be clearly seen a significant increase in scores after the implementation of the intervention. Questions 3 were successfully answered by the participants and recorded the highest increase of 73.3 percent, followed by questions 7 which increased by 66.7 percent, question 5 increased by 60 percent, question 4 increased by 53.3 percent, question 1 increased by 46.7 percent, question 6 increased by 22 percent and question 2 increased by 13.4 percent. However, only 80 percent of the participants were able to answer question 1. This clearly shows that the Esiu Kenyah prototype is effective in learning and improving the Kenyah language (Lepo' Jengan).



*Figure 8 Pre-test and Post-test mean score comparison*

Figure 8 shows the respondents who respond correctly are shown in the mean score and it is found that the mean score of the 20.44 score increases to 42.8 at the final score. Therefore, after the intervention throughout the study period, it can be concluded that the user can learn to speak a basic level of Kenyah (Lepo' Jengan) through using the Esiu Kenyah prototype.

#### **4.2.1 Prototype Evaluation**

**Research question 3:** How is the acceptance of youths in urban settings of Sarawak in learning the Kenyah Language through mobile games?

**Research question 4:** Can the Esiu Kenyah prototype preserve the Kenyah Language (Lepo' Jengan)?

*Table 5* Esiu Kenyah Evaluation

| Section  | Feedback   | Percentage % |
|----------|--|--------------|
| Reaction | The apps was relevant to what I might be expected to do to         | 93.4         |
| Learning | This apps enhanced my knowledge of the subject matter              | 93.3         |
| Behavior | I was highly motivated to use the apps                             | 86.7         |
| Result   | I would recommend this apps to others                              | 93.3         |
|          | This apps is very useful to learn and preserve the Kenyah language | 86.7         |

Table 5 is the overall participants' satisfaction towards Esiu Kenyah for learning Kenyah language (Lepo' Jengan) as determined based on four level: reaction, learning, behaviour and results adapted from Kirkpatrick's, 1967 as in Appendix 5. For reaction, 93.4% of the participants strongly agree that the app was relevant to what the participants might be expected to do. Moreover, 93.3% of the participants strongly agree that the app can enhance the knowledge in learning the Kenyah language. As for the participants' behaviour, 86.7% strongly agree that the Esiu Kenyah can strengthen their motivation in learning the Kenyah language. Furthermore, 93.3% of the participants would recommend the Esiu Kenyah in order to learn the Kenyah language (Lepo' Jengan). Lastly, 86.7% of the participants strongly agree that Esiu Kenyah can preserve the Kenyah language (Lepo' Jengan). The evaluation indicated that the participants' acceptance levels towards the Esiu Kenyah prototype was fairly high. This is similar to what Obonyo (2009) stated in his study that the youths are more encouraged to learn their native language and to view their language within the technology, which may cause them to devote more time to learn the language.

### 4.3 Discussions

The aim of this study was to explore the potential use of mobile games in encouraging youths to learn Kenyah language (Lepo' Jengan). The first objective of this study was to analyse the strengths and weaknesses in utilizing mobile game-based application in learning the Kenyah language. The features and controls of the Esiu Kenyah were adapted from I-MMAPS for Learning Iban Language done by Chachil et al (2015). Study done by Vlugter (2009) used a pre-test and post-test with an experimental and control group to determine the effectiveness of the Maori Language Learning software they developed. The class was split in order to get the test and control groups. The control group was given a traditional tutor based lesson, meanwhile, the experimental group was using CALL. Study related to game-based mobile application was done by Crow (2015) is similar with the current study and was proven to be an effective for language learning. The current study used a similar methodology except with smaller test group which is a single group pre-test and post-test (Quasi-Experimental). The results showed clear improvement in vocabulary learnt after the intervention. The participants were able to learn the task with little instructions because the features and controls of the prototype is familiar formats from mobile games they had played. The researcher found that there were some weaknesses in Esiu Kenyah based on the participants' feedback as in Appendix 6. However, the results of the post-test clearly showed an improvement in learning Kenyah language (Lepo' Jengan) and the strength positively associated with the potential use of mobile game-based in learning the Kenyah language. In terms of motivation and engagement, the game-based mobile applications was very effective. In other words, it helps to build strategies for future learning in other context.

The second objective was to identify the acceptance level of the Kenyah youths in urban areas of Sarawak in learning the Kenyah language through mobile games. Study done by Chachil et al (2015) used a structured questionnaire based on four constructs of I-MMAPPS for Learning Iban Language in order to identify users' satisfaction level. Another related study done by Obonyo (2009) used a post-survey questionnaire in order to measure the changes in family members' knowledge and attitude about the language, language-learning and the usefulness of the software. The current study used a similar methodology to determine the participants' acceptance level except the evaluation form was constructed by adapting Kirkpatrick model (1967). It is important to review the evaluation that were done by the participants after the intervention. It was conclusively shown that the acceptance level among the Kenyah youths was fairly high. In short, the Esiu Kenyah can encourage more users especially the youths to participate in language learning and cultivating revitalization efforts.

#### **4.4 Summary**

This chapter has analysed and discussed the findings obtained from data collection. The main themes of the study are the strength and weaknesses in utilizing mobile game-based application and the acceptance level of the Kenyah youths especially in urban areas of Sarawak in learning Kenyah language through mobile games are presented and further described in details.

## **CHAPTER 5**

### **CONCLUSION**

#### **5.1 Introduction**

This chapter serves to conclude the overall findings of the study which are the conclusion of the study, implications from research findings and suggestions for further research is elaborated as well.

This research has explored the potential use of mobile games in encouraging youths to learn Kenyah language (Lepo' Jengan) by addressing the following questions:

- i. What are the strengths and weaknesses in utilizing mobile game-based application in learning the Kenyah language?
- ii. Can the Esiu Kenyah prototype teach the Kenyah language (Lepo' Jengan)?
- iii. How is the acceptance of youths in urban settings of Sarawak in learning the Kenyah Language through mobile games?
- iv. Can the Esiu Kenyah prototype preserve the Kenyah Language (Lepo' Jengan)?

As an empirical interventional study, this research was focused on analysing the strengths and weaknesses in utilizing mobile game-based application in learning the Kenyah language. In order to obtain the result, a total of 15 participants were selected conveniently. Therefore, participants from the same ethnicity and mixed-race Kenyah youths are more preferred to control diversified results due to cultural differences. Aside from cultural background, the age range of participants must be 17 to 40 years of age for selection based on NYDP (National Youth Development Policy). Only Kenyah youth from 17 to 40 years of age

are eligible in this study. Observations were also conducted, therefore, pre-test and post-test were carried out.

Findings were presented based on the objectives of the study. To address the first objective, the data that were gathered from the pre-test and post-test were analysed thoroughly. It was found that the results showed clear improvement in vocabulary and sentence structure. The participants were able to learn the task with little instructions because the features and controls of the prototype is familiar formats from mobile games they had played. In addition, the Esiu Kenyah is potentially as a platform to learn and to preserve the Kenyah language.

The second objectives determines the acceptance level among the Kenyah youths in urban areas of Sarawak in learning the Kenyah language through mobile games. The researcher found that Esiu Kenyah evaluation done by the participants was conclusively shown the acceptance level among the Kenyah youths was fairly high.

## **5.2 Implications**

Current study describe the intervention used by the participants and the potential use of mobile games in learning native language especially the Kenyah language (Lepo' Jengan). The result of this study can be used to fill in the literature gap related to accessing native language learning through mobile game-based applications. Furthermore, current study can be used as extra information for other related study. There were more detailed and related information were included in this study. This study may raise awareness on the endangered languages especially in Borneo, Sarawak and contribute a brief idea on how to preserve

native languages in an effective way. Therefore, results from the current study can be used as a guidelines to develop an interactive platform for language learning activities.

### **5.3 Recommendations for further research**

As this study was limited in terms of small sample size and biased data collection in urban areas only, findings cannot be generalised as a whole. The findings suggest that future research should be done to enhance the functions, various contents in terms of vocabulary and clear instructions. Future researches could focus more on endangered languages especially in Borneo, Sarawak in order to preserve and maintain the language use in region. Furthermore, more research need to be done to cultivate better resources to suit the local context, such as large sample size, control group versus experimental group and the effectiveness of the intervention based on quasi-experimental time series design.



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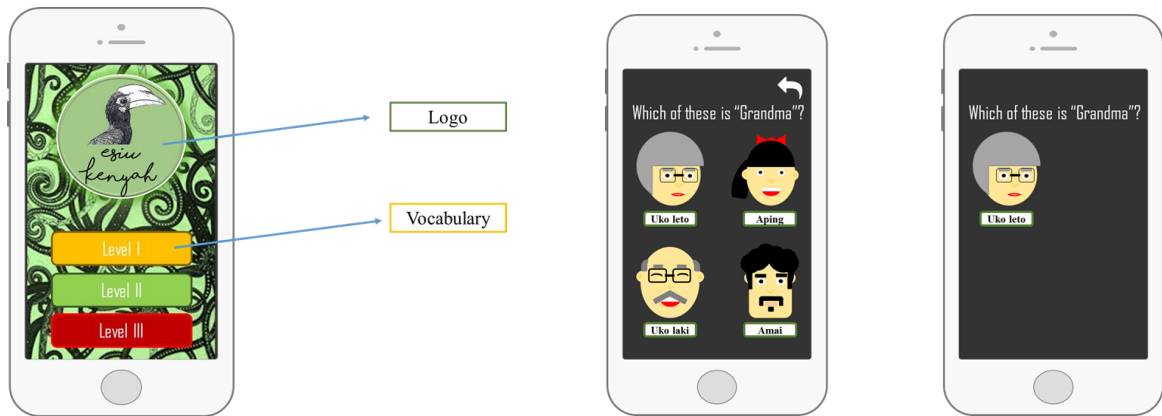
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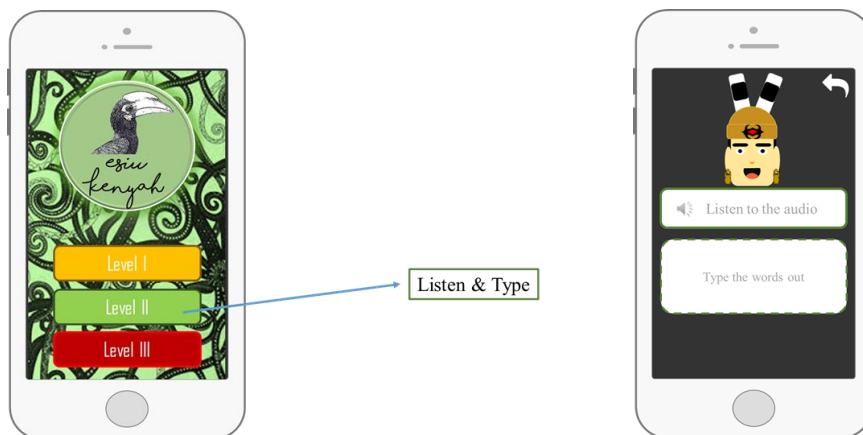
## APPENDICES

### APPENDIX 1: ESIU KENYAH STORYBOARD

1)



2)



3)



## APPENDIX 2: PARTICIPANTS IDENTIFICATION QUESTIONNAIRE

### Basic information

Please fill out the following information as accurately as possible

**\*Required**

1. Age \*

---

2. Email \*

---

3. Phone number \*

---

4. Race

*Mark only one oval.*

- ☐ Kenyah
- ☐ Kenyah/Iban
- ☐ Kenyah/Chinese
- ☐ Kenyah/Melanau
- ☐ Kenyah (Lepo Jengan)
- ☐ Other: 

---

5. Have you ever participated in any language learning courses through mobile devices? (Apps & Websites) \*

*Mark only one oval.*

- ☐ Yes
- ☐ No
- ☐ Maybe

6. I am interested in learning more about the Kenyah language and dialects \*

*Mark only one oval.*

- ☐ Strongly Agree
- ☐ Agree
- ☐ Neutral
- ☐ Disagree
- ☐ Strongly Disagree

**7. When my parents speak in Kenyah, I understand them. \***

*Mark only one oval.*

- ☐ Not at all
- ☐ Not well
- ☐ Well
- ☐ Very well

**8. I have no difficulty in understanding the following languages. \***

*Mark only one oval per row.*

|                | High difficulty       | More difficulty       | Lesser difficulty     | No difficulty         |
|----------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Kenyah         | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Iban           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Melayu Sarawak | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Mandarin       | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Bidayuh        | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Melanau        | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

**9. Rate your proficiency at the following skills in Kenyah language: \***

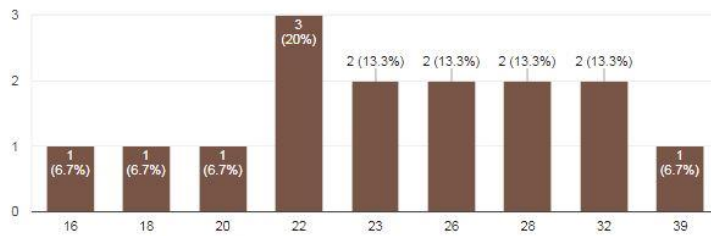
*Mark only one oval per row.*

|           | None                  | Beginner              | Intermediate          | Very Fluent           |
|-----------|-----------------------|-----------------------|-----------------------|-----------------------|
| Speaking  | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Listening | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Reading   | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Writing   | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

### APPENDIX 3: COMPLETE PRE-SURVEY RESULT

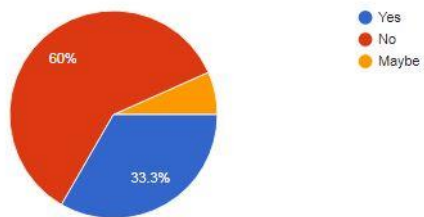
#### Age

15 responses



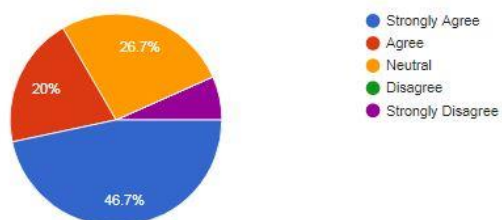
Have you ever participated in any language learning courses through mobile devices? (Apps & Websites)

15 responses



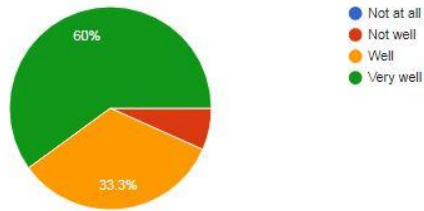
I feel comfortable talking to family members in Kenyah.

15 responses



When my parents speak in Kenyah, I understand them.

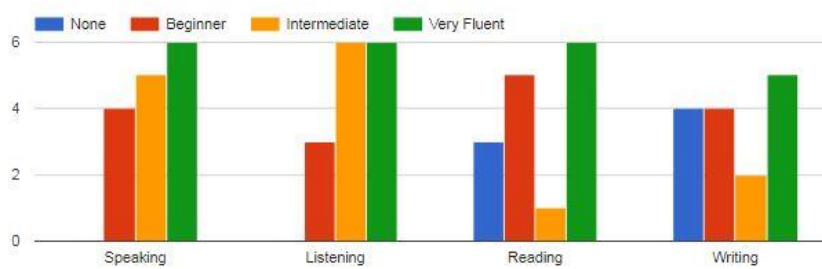
15 responses



I have no difficulty in understanding the following languages.



Rate your proficiency at the following skills in Kenyah language:





## APPENDIX 4: PRE-TEST AND POST-TEST QUESTIONNAIRE

Question 1  
Not yet  
answered  
Marked out of  
1.00  
Flag  
question

Which of these is a "woman"?

Select one:

☐ A. Leto



☐ B. Amai



☐ C. Uwing



☐ D. Uko laki



Question 9  
Not yet  
answered  
Marked out of  
1.00  
Flag  
question

Translate "My mother". Enter your answer into the provided box.

Answer:

Question 1  
Not yet  
answered  
Marked out of  
1.00  
Flag  
question



Listen and type the sentences you hear.

Answer:

Question 3  
Not yet answered  
Marked out of 1.00  
Flag question

This is my sister.

|  |  |  |  |  |
|--|--|--|--|--|
|  |  |  |  |  |
|--|--|--|--|--|

|       |      |      |      |     |
|-------|------|------|------|-----|
| sadin | leto | che' | e'ot | ini |
|-------|------|------|------|-----|

## APPENDIX 5: EVALUATION FORM (ADAPTED FROM KIRKPATRICK MODEL)

---

I was satisfied with the apps overall \*

- ☐ Strongly agree
- ☐ Agree
- ☐ Neutral
- ☐ Disagree
- ☐ Strongly disagree

This apps performs and loads quickly \*

- ☐ Strongly agree
- ☐ Agree
- ☐ Neutral
- ☐ Disagree
- ☐ Strongly disagree

The apps was relevant to what I might be expected to do to \*

- ☐ Strongly agree
- ☐ Agree
- ☐ Neutral
- ☐ Disagree
- ☐ Strongly disagree

I can launch and navigate the apps independently \*

- ☐ Strongly agree
- ☐ Agree
- ☐ Neutral
- ☐ Disagree
- ☐ Strongly disagree

I would recommend this apps to others \*

- ☐ Strongly agree
- ☐ Agree
- ☐ Neutral
- ☐ Disagree
- ☐ Strongly disagree

This apps enhanced my knowledge of the subject matter \*

- ☐ Strongly agree
- ☐ Agree
- ☐ Neutral
- ☐ Disagree
- ☐ Strongly Disagree

This apps is highly effective to learn the Kenyah language \*

- ☐ Strongly agree
- ☐ Agree
- ☐ Neutral
- ☐ Disagree
- ☐ Strongly Disagree

This apps provided content that is relevant and accurate \*

- ☐ Strongly agree
- ☐ Agree
- ☐ Neutral
- ☐ Disagree
- ☐ Strongly Disagree

This apps is very useful to learn and preserve the Kenyah language \*

- ☐ Strongly agree
- ☐ Agree
- ☐ Neutral
- ☐ Disagree
- ☐ Strongly disagree

I was highly motivated to use the apps \*

- ☐ Strongly agree
- ☐ Agree
- ☐ Neutral
- ☐ Disagree
- ☐ Strongly disagree

Final comment \*

Short-answer text

## APPENDIX 6: WEAKNESSES IN ESIU KENYAH PROTOTYPE

Overall is good. Just that the instructions for level 2 quite confusing.

Firstly, instructions of each task can be further improved by providing more detailed task descriptions. For instance, task 2 (listening) could have been further improved by specifically providing detailed instructions to the users that they are expected to rewrite each audio recording in the space provided. It would have been better to have the task instructions and descriptions on top of each task with a sample provided. Secondly, Kenyah Language spelling system varies, kindly provide variations of spelling, e.g. uwe' or uwek.

Good Luack

For part II quite confusing about the requirement whether to answer the question or write the audio.

This page is awesome

Website yang sangat bagus dalam mempelajari asas bahasa Kenyah.

Not bad 🍷

It was both easy and fun to do!

I am satisfied. Thank you.

## APPENDIX 7: OVERALL POINTS AFTER THE INTERVENTION

| (Deletion in progress) Int... | Level I (Vocabulary) | Level II (Listen & Type) | Level III (Sentence Struc... | Course total |
|-------------------------------|----------------------|--------------------------|------------------------------|--------------|
| -                             | -                    | -                        | -                            | -            |
| -                             | 70.00                | 70.00                    | 88.00                        | 228.00       |
| -                             | -                    | -                        | -                            | -            |
| -                             | 80.00                | 40.00                    | 79.33                        | 199.33       |
| -                             | 80.00                | 80.00                    | 100.00                       | 230.00       |
| -                             | 90.00                | 30.00                    | 3.33                         | 123.33       |
| -                             | 80.00                | 60.00                    | 86.00                        | 226.00       |
| -                             | 80.00                | 40.00                    | 82.00                        | 202.00       |
| -                             | 80.00                | 0.00                     | 69.67                        | 149.67       |
| -                             | 90.00                | 90.00                    | 3.33                         | 183.33       |
| -                             | 80.00                | 30.00                    | 92.00                        | 202.00       |
| -                             | 80.00                | 70.00                    | 87.00                        | 237.00       |
| -                             | -                    | -                        | -                            | -            |
| -                             | -                    | -                        | -                            | -            |
| -                             | 100.00               | 90.00                    | 100.00                       | 290.00       |
| -                             | -                    | -                        | -                            | -            |
| -                             | 80.00                | -                        | 21.67                        | 101.67       |
| -                             | 80.00                | 70.00                    | 71.67                        | 221.67       |
| -                             | 80.00                | 0.00                     | 94.00                        | 174.00       |
| -                             | -                    | -                        | -                            | -            |
| -                             | 80.00                | 10.00                    | 92.00                        | 182.00       |
| Overall average               | 82.00                | 43.57                    | 71.33                        | 194.00       |